



K-1 Rideshare Opportunities

The Future Is Reusable Aerospace Vehicles



Presented to:

Rideshare 2001 Conference

Monterey, California

May 30, 2001

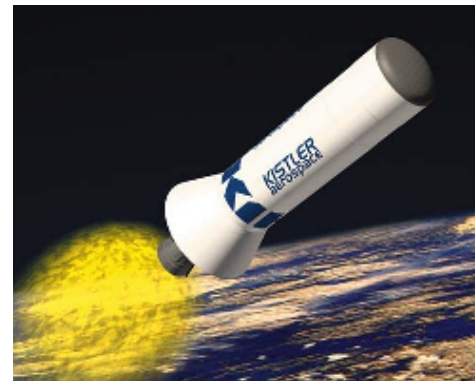
Debra Facktor Lepore
Director of Marketing
dflepore@kistleraero.com



The Opportunity

The Future Is Reusable Aerospace Vehicles

- Kistler awarded \$135 million Flight Demonstration contract for NASA Space Launch Initiative (SLI), including options
 - First 4 K-1 flights demonstrate embedded RLV technologies
 - Add-on flight options demonstrate RLV technology experiments
- Rideshare available on:
 - K-1 flights #2 - #4 (~ 2nd half of 2002 to early 2003)
 - Add-on experiment flight options (~ early 2003 to mid 2005)
 - Future K-1 flights
- Up to 7,000 lbs (3,175 kg) payload in K-1 Standard Payload Module



K-1 Vehicle Overview

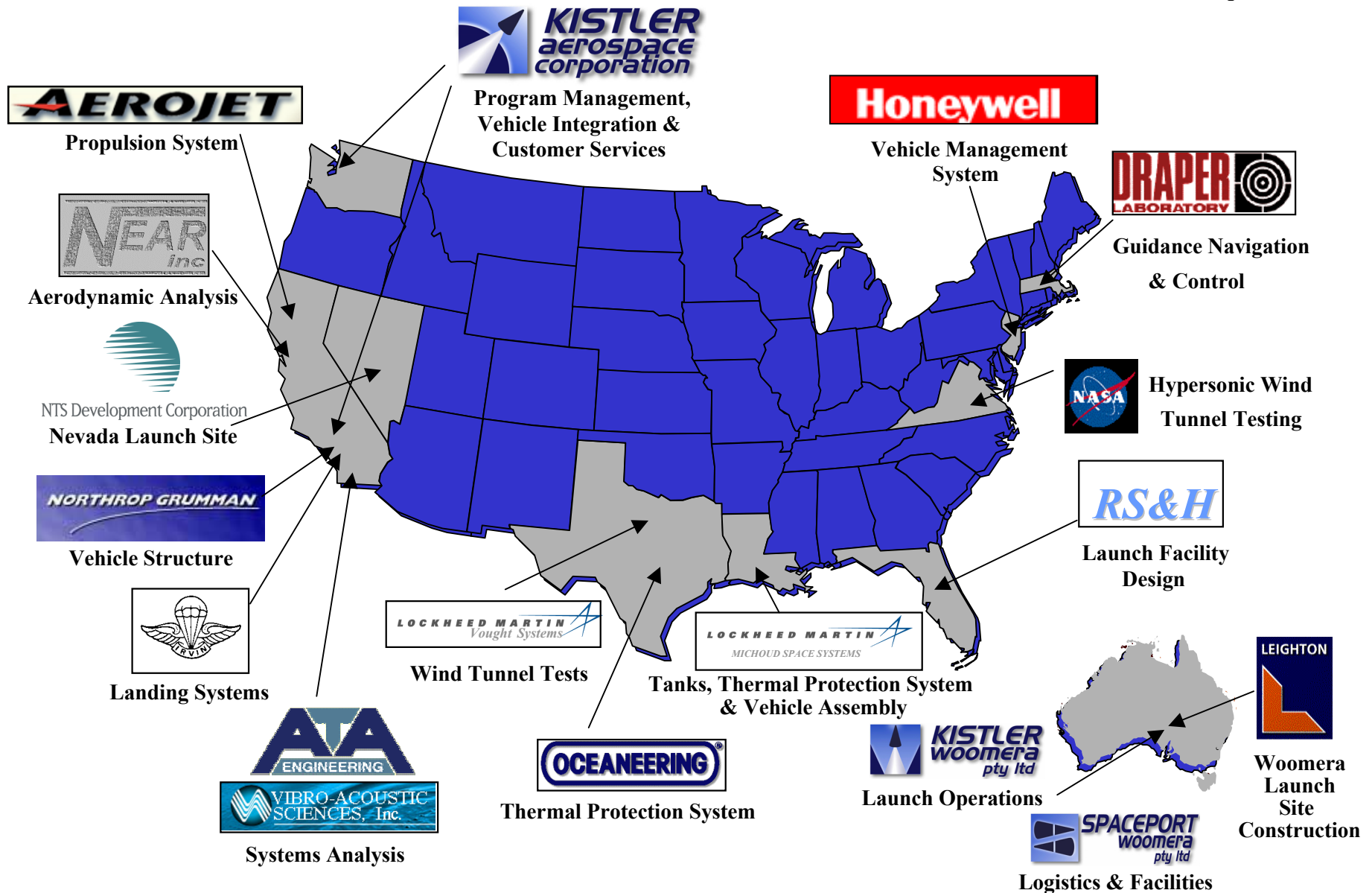
The Future Is Reusable Aerospace Vehicles



- Two Stage Fully Reusable Vehicle
- Both Stages Return to Launch Site
 - 6000 ft landing site
 - Parachutes/airbags
- Schedule Flexibility
 - 9 day turnaround
 - 3 day response time
 - 52 flights/year with 5 vehicle fleet
- Payload Module Removed for Parallel Spacecraft Integration/Encapsulation
- Horizontal Vehicle Processing and Checkout
- Vehicle Health Monitoring System
- Low-Cost Highly Reliable, Proven Technologies

K-1 Contractor Team

The Future Is Reusable Aerospace Vehicles



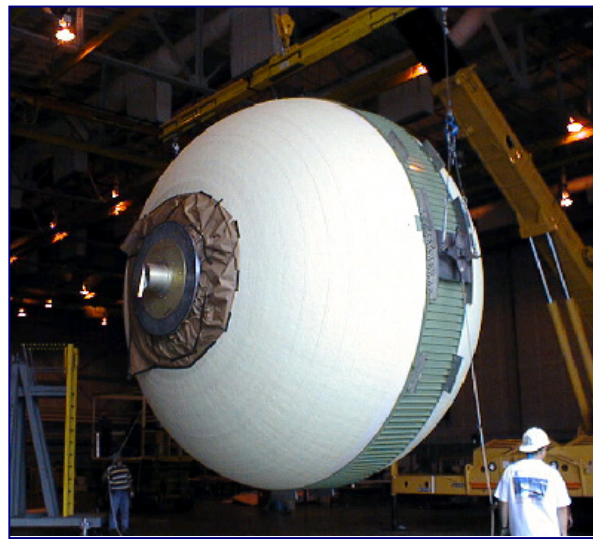
K-1 Program Status

The Future Is Reusable Aerospace Vehicles

- K-1 vehicle ready for integration and launch
 - 75% hardware, 85% design, 100% software complete
- First two flight tests fully insured
- Diversified market to include MEO / GEO payloads and ISS resupply
- Contracts:
 - Space Systems / Loral for 10 launches
 - NASA \$135 million flight demonstration contract



6-parachute drop test
of first stage return



K-1 LOX Tank

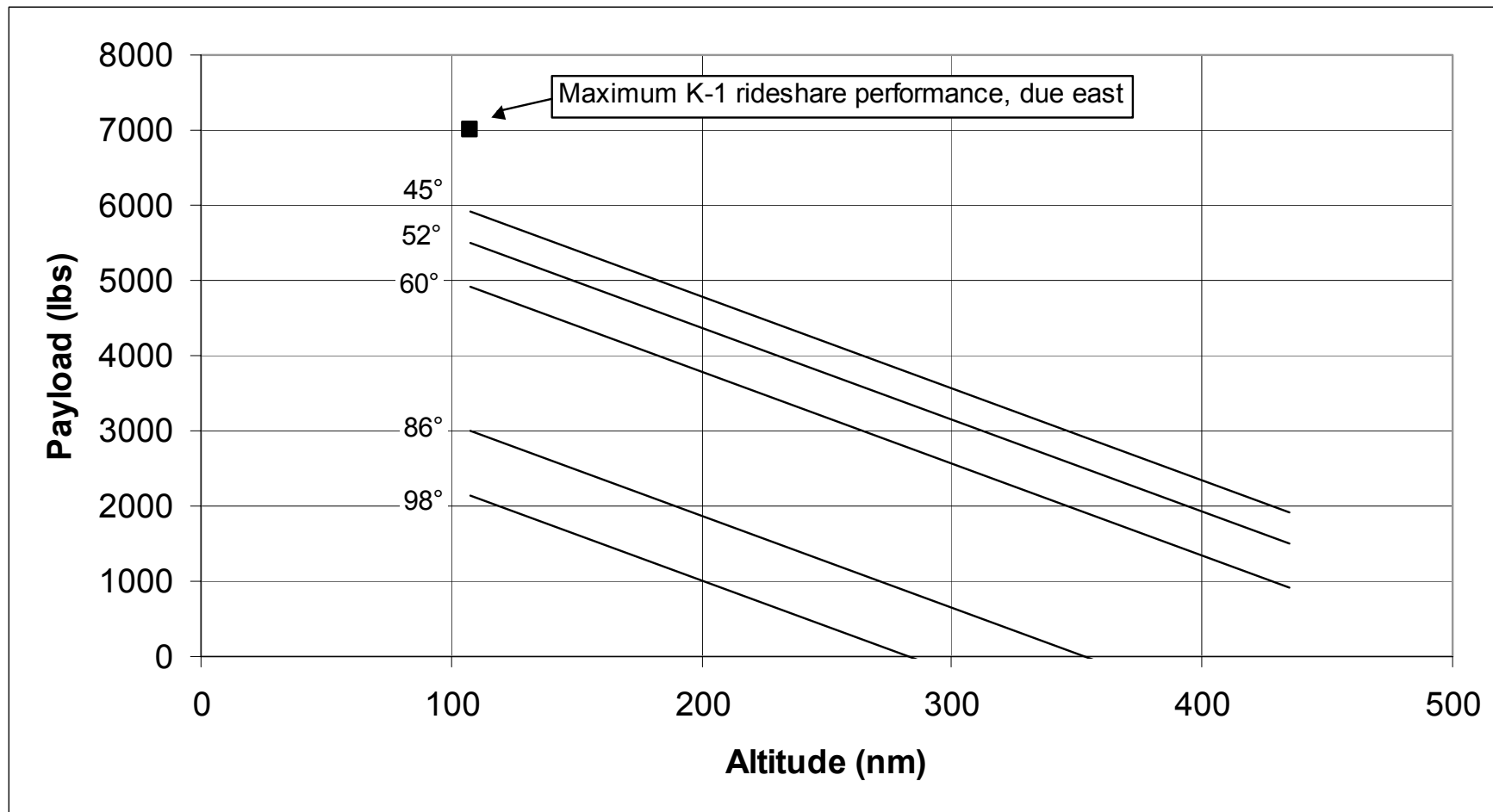


First Stage Mid-Body
in Final Assembly



K-1 Performance Available for Rideshare on NASA Flights

The Future Is Reusable Aerospace Vehicles



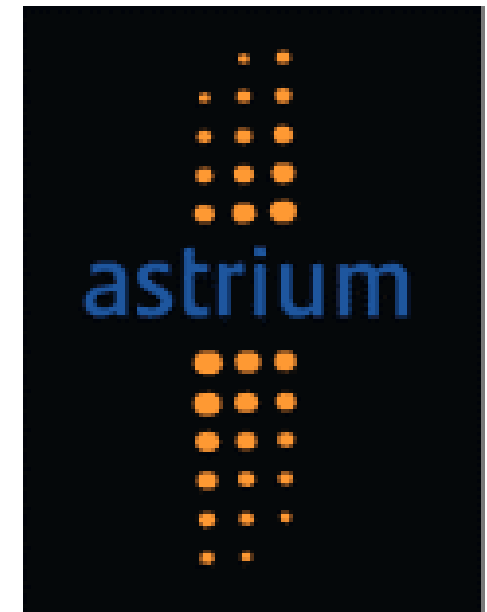
This K-1 performance chart applies to rideshare payloads on Space Launch Initiative (SLI) flights ONLY. It accounts for the mass of experiments and instrumentation to support the SLI primary mission.



Astrium Multiple Payload Adapter System

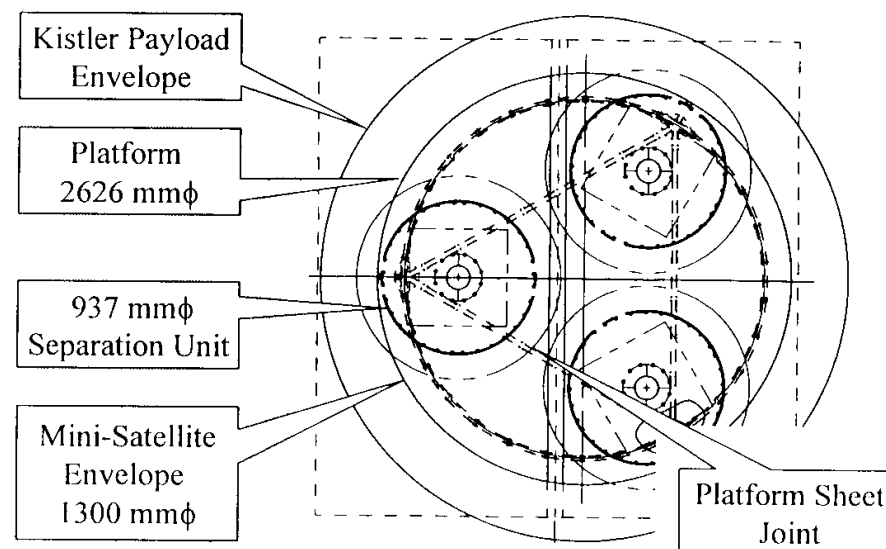
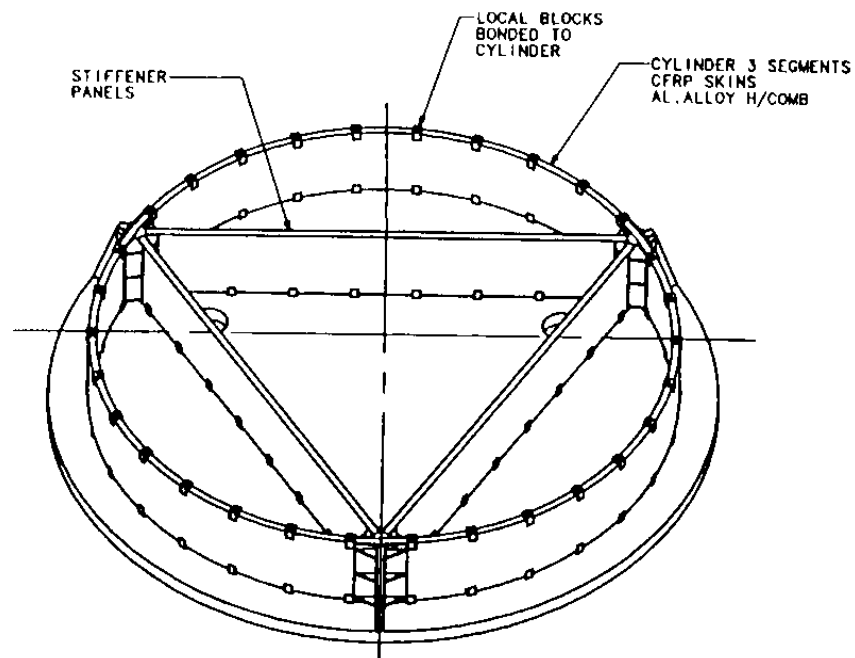
The Future Is Reusable Aerospace Vehicles

- Astrium Ltd.
 - Formerly Matra Marconi Space UK
 - Industry leader in secondary payload adapters through Ariane
- Kistler and Astrium Ltd. have signed a Memorandum of Understanding to develop reusable Multiple Payload Adapter Systems (MPAS) for the K-1
- MPAS-1
 - 3 minisatellites (<500 kg each) on dedicated flight
- MPAS-2
 - Up to 8 microsatellites (<125 kg each) plus primary
 - Potential dispensers for flights #2-#4



MPAS-1

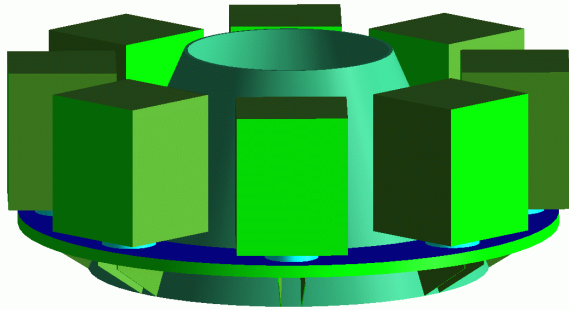
The Future Is Reusable Aerospace Vehicles



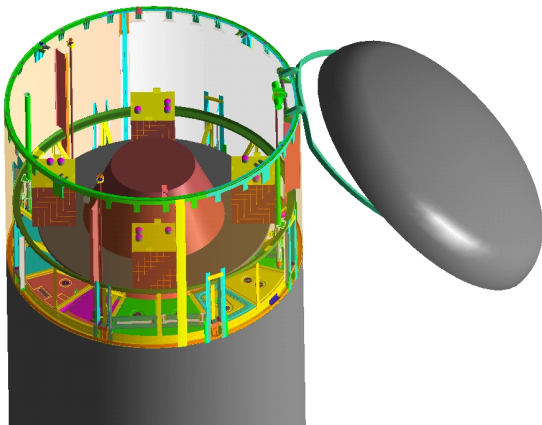
Flies 3 mini satellites on dedicated K-1 flight

MPAS-2

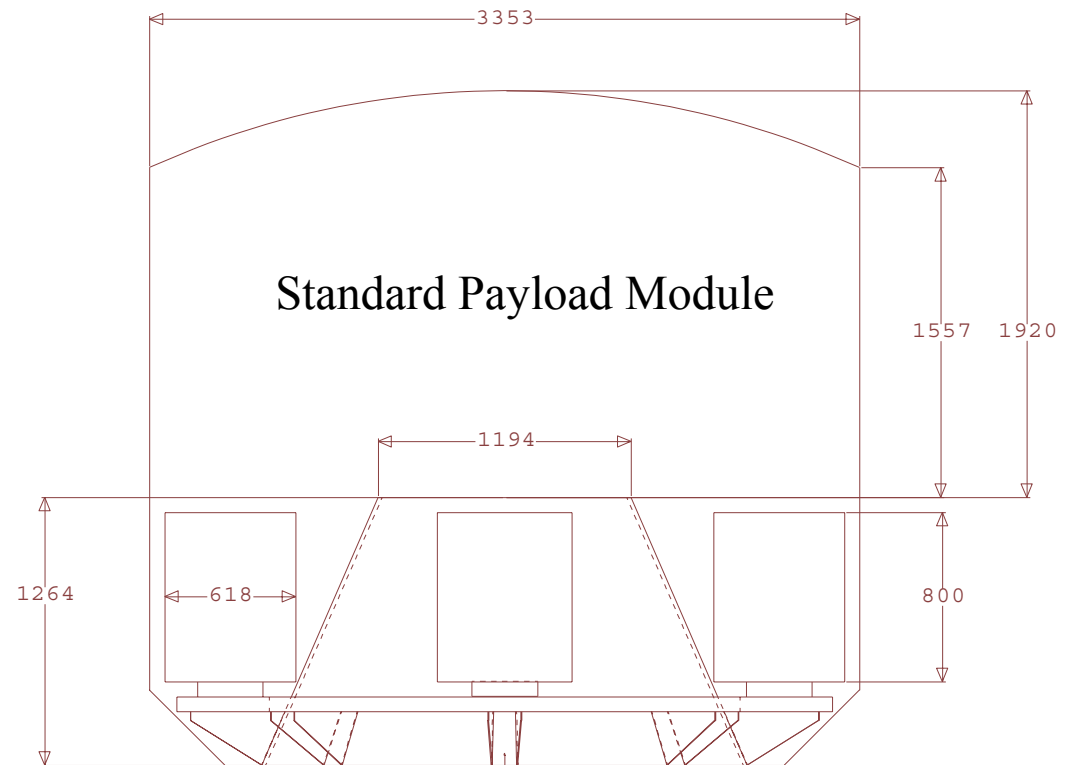
The Future Is Reusable Aerospace Vehicles



8 representative microsatellites arranged on MPAS-2 surrounding primary adapter



Cutaway showing MPAS-2 with 4 microsatellites in K-1 Standard Payload Module without primary



Dynamic Envelope
(measurements in mm)



Next Steps

The Future Is Reusable Aerospace Vehicles

- NASA has first right to reserve rideshare space on SLI flights
- Interested parties should talk to Kistler and fill out payload questionnaire
- Evaluation phase open until ~ 4Q 2001
- Launch contracts signed after evaluation phase
- First launches mid 2002 – early 2003

<http://www.kistleraerospace.com>